



Eric A. Rohlfing Deputy Director for Technology

ARPA-E Mission

Mission: To overcome long-term and high-risk technological barriers in the

development of energy technologies

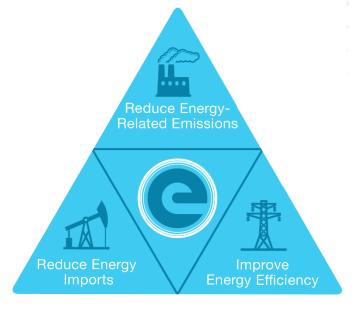
Goals: Ensure America's

- Economic Security
- Energy Security
- Technological Lead in Advanced Energy Technologies

Means:

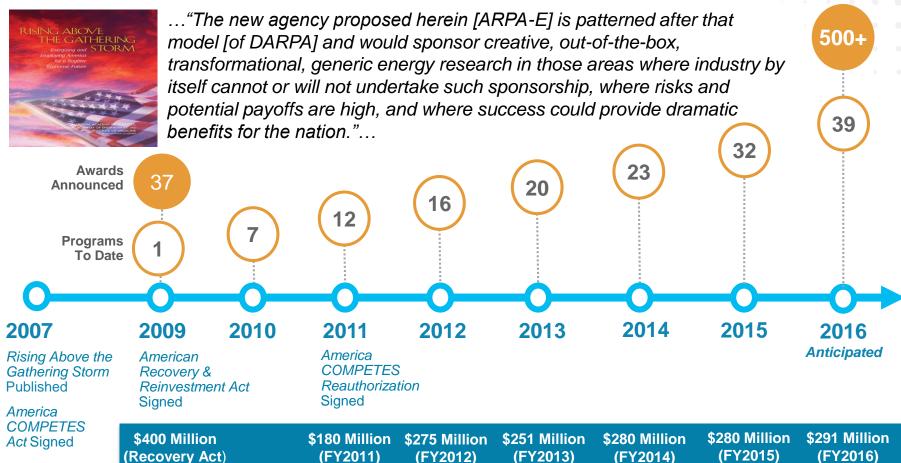
- Identify and promote revolutionary advances in fundamental and applied sciences
- Translate scientific discoveries and cutting-edge inventions into technological innovations
- Accelerate transformational technological advances in areas that industry by itself is not likely to undertake because of technical and financial uncertainty





ARPA-E's History

In 2007, The National Academies recommended Congress establish an Advanced Research Projects Agency within the U.S. Department of Energy*





Built on DARPA foundation, but still evolving...

ARPA-E Additions Fellows as creative resource Majority Tech-to-Fully in-house cooperative contracting market focus agreements Substantial High risk / return Institutional involvement in R&D independence tech management Internal program **Empowered** Flat organization program directors pitches / scrubs Special hiring authority with term limits **DARPA-like Foundation**

Unique to DARPA:

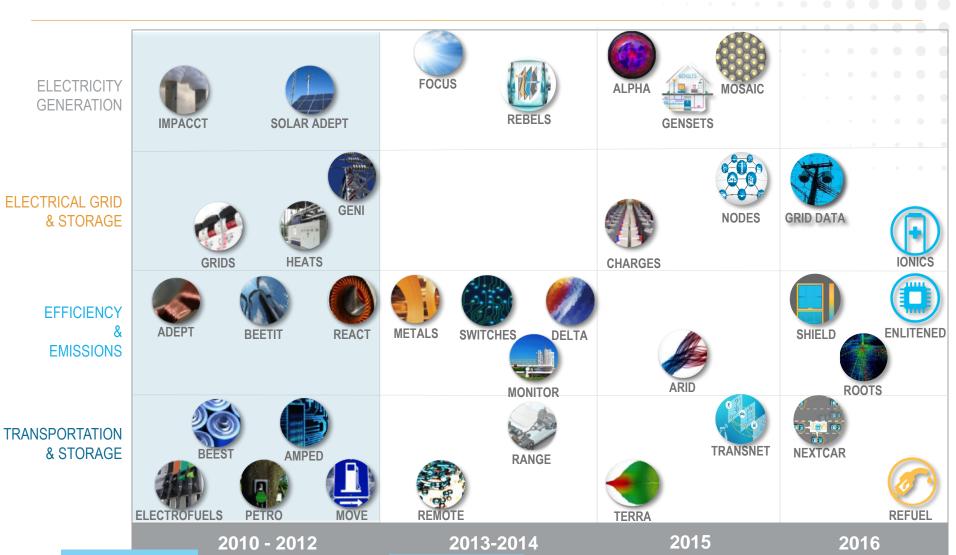
Staged prototype demonstrations

Large-scale systems integration

Primary "customer" (DoD)



ARPA-E Programs and OPENs



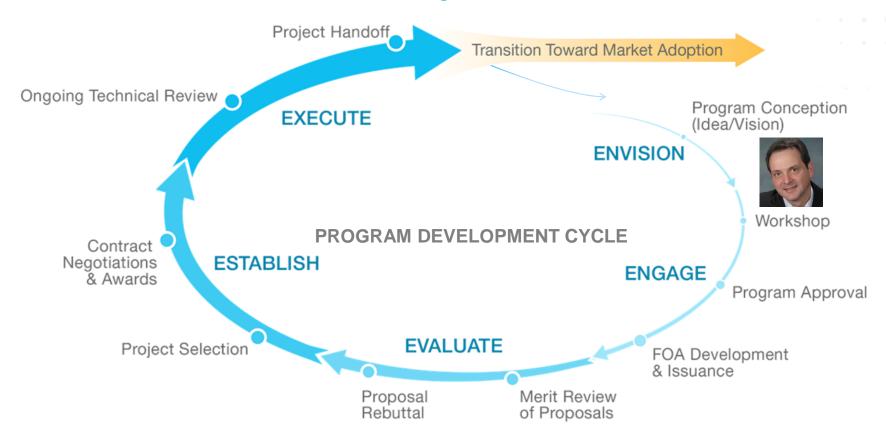


OPEN 2012 66 projects OPEN 2015 41 projects

Developing ARPA-E Focused Programs



ARPA-E Program Directors





ARPA-E Program Framing Questions

What is the problem to be **solved**?

If successful, how will the proposed program impact one or more of **ARPA-E's mission areas**?

What is the current state of R&D? How is the proposed program a transformative and disruptive approach?

How does the program complement R&D efforts in other DOE programs, federal agencies, and the private sector?

Why is now the **right time** to solve this problem?

What are the **program goals** and how will
progress towards those
goals be measured?

What happens at the conclusion of the program? What are the **barriers to commercialization** and how might these problems be overcome?

What **research communities** need to be brought together?

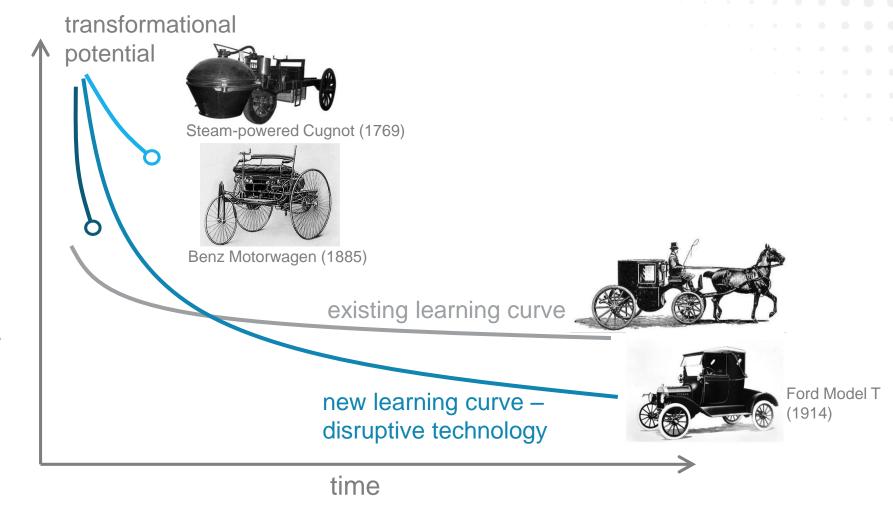


If it works...

will it matter?

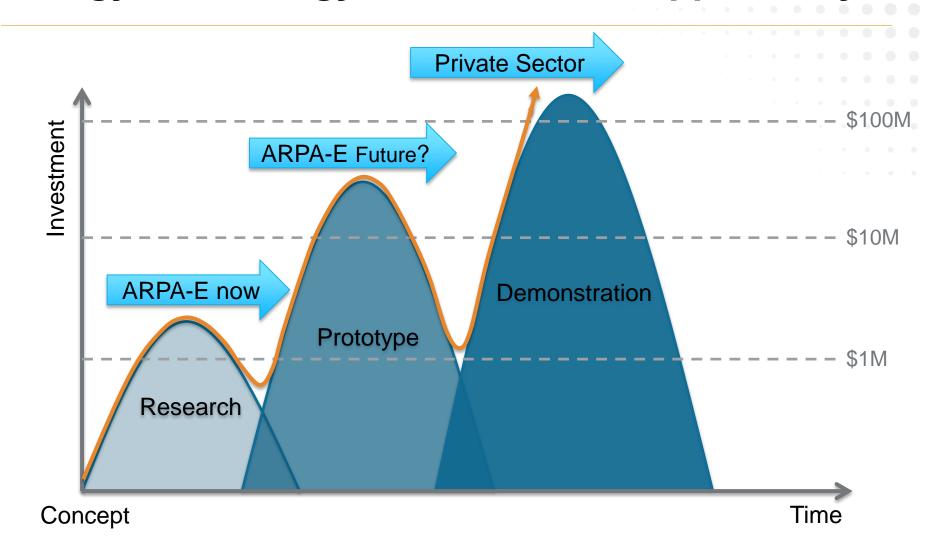


ARPA-E goal: Disruptive technologies





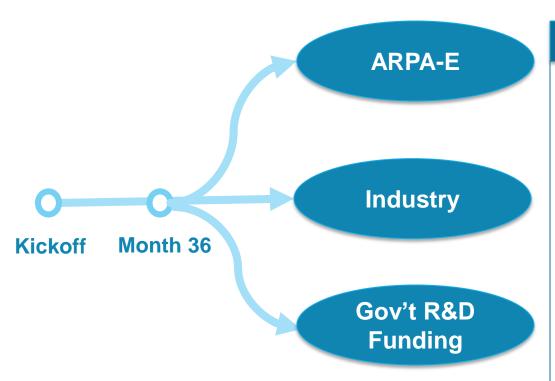
Energy Technology "Mountains of Opportunity"





Technology to Market (T2M)

What happens to this project when the funding runs out?



Why month 37 matters so much

- Return on the public dollar publishing is great, but we're here to move a market
- Momentum Teams have clear view on what's required next
- Team maintain institutional knowledge
- Thought leadership –
 Validate that we've hit upon an idea that really matters



Measuring ARPA-E's Success

Since 2009 ARPA-E has invested approximately \$1.3 billion across over 500 projects, through 32 focused programs and 3 open funding solicitations.

For all alumni and current projects:

- Follow-on Funding
 - 45 projects have attracted more than \$1.25 billion from the private sector
- Partnerships with other government agencies
 - 60 government projects
- New company formation
 - 36 new companies formed





Want to work at ARPA-E? There may be a role for you!



Program Director

- Program development
- Active project management
- > Thought leadership
- Explore new technical areas

Technology-to-Market Advisor

- Business development
- Technical marketing
- Techno-economic analyses
- Stakeholder outreach

Fellow

- Independent energy technology development
- Program Director support
- Organizational support



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